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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/814,615	DORNBUSCH, ANDREW W.	
	Examiner	**Art Unit**	
	Emmanuel Bayard	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17 and 19-38* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 19-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment filed on 1/11/08 in which claims 1-17 and 19-38 are pending. The applicant's amendments have been fully considered but they are moot based on the new ground or rejection therefore this case is made final.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stikvoort U.S. patent No 6,326,847 in view of Okanobu U.S. Patent No 6,529,100 B1.

As per claims 1 and 16, Stikvoort teaches a polyphase filter comprising (see fig.2 element 16): a first filter section having an input for receiving signals representative of at least two phases of an input signal, and an output for providing signals representative of at least two phases of a filtered signal, said first filter section having a first passband response (see fig.4 elements 56-103 combined and col.5, lines 15-50); a buffer section having an input coupled to said output of said first filter section, and an output (see fig.4 element 57 and col.5, lines 30-55); and a second filter section having an input coupled to said output of said buffer section, and an output for providing an output of the polyphase filter, said second filter section having a second passband response (see fig.4 elements 58-116 combined and col.5, lines 44-45 ; wherein said first and second filter sections are configured such that said second passband response compensates for said first passband response (see abstract and col.1, lines 53-67 and col.2, lines 1-2).

However Stikvoort does not teach wherein one of said first and second filter sections has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio.

Okanobu teaches wherein a filter section (one of said first and second filter sections) has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio (see figs.2, 8 elements 171-175 and col.7, lines 15-42).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Okanobu into Stikvoort as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claims 2 and 11, Stikvoort (see abstract and col.col.2, lines 15-20) and Okanobu in combination would teach wherein an overall passband response of the polyphase filter is characterized as being substantially zero (flat) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claims 3 and 17, Okanobu teaches said at least three polyphase filter stages comprises four stages (see figs.2, 8 elements 171-175 and col.7, lines 15-42). Furthermore implementing such teaching into Stikvoort would have been obvious to one skilled in the art on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claim 4, Stikvoort teaches wherein said signals representative of at least two phases of said input signal comprise a positive in-phase input signal, a negative in-phase input signal, a positive quadrature input signal, and a negative quadrature input signal, and wherein said signals representative of at least two phases of said filtered signal comprise a positive in-phase filtered signal, a negative in-phase filtered signal, a positive quadrature filtered signal, and a negative quadrature filtered signal (see col.3, lines 24-25).

As per claims 5 and 15, Stikvoort and Okanobu in combination would teach wherein said first one of said first and second filter sections comprises: a first resistor having a first terminal for receiving said positive in-phase input signal, and a second terminal for providing said positive in-phase filtered signal (see Stikvoort fig.4 element 52); a second resistor having a first terminal for receiving said positive quadrature input signal, and a second terminal for providing said positive quadrature filtered signal (see Stikvoort fig.4 element 70); a third resistor having a first terminal for receiving said negative in-phase input signal, and a second terminal for providing said negative in-phase filtered signal (see Stikvoort fig.4 element 88); a fourth resistor having a first terminal for receiving said negative quadrature input signal, and a second terminal for providing said negative quadrature filtered signal (see Stikvoort fig.4 element 106); a first capacitor having a first terminal coupled to said first terminal of said first resistor, and a second terminal coupled to said second terminal of said second resistor (see fig.4 element 62); a second capacitor having a first terminal coupled to said first terminal of said second resistor, and a second terminal coupled to said second terminal of said third resistor (see fig.4 element 80); a third capacitor having a first terminal coupled to said first terminal of said third resistor, and a second terminal coupled to said second

terminal of said fourth resistor (see Stikvoort fig.4 element 98); and a fourth capacitor having a first terminal coupled to said first terminal of said fourth resistor, and a second terminal coupled to said second terminal of said first resistor (see Stikvoort fig.4 element 99 and col.5, lines 15-42) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7,lines 60-67).

As per claim 6, Stikvoort and Okanobu in combination would teach wherein said buffer section comprises: a first buffer having an input terminal for receiving said positive in-phase filtered signal, and an output terminal; a second buffer having an input terminal for receiving said positive quadrature filtered signal, and an output terminal; a third buffer having an input terminal for receiving said negative in-phase filtered signal, and an output terminal; and a fourth buffer having an input terminal for receiving said negative quadrature filtered signal, and an output terminal (note that since the buffer 57 is receiving two in-phase (I+, I-) and two quadrature (Q+, Q-) filtered input signals from(see Stikvoort elements 56, 74, 92 and 110), therefore it would be inherent that the buffer 57 can be replaced with four identical or different buffers to perform the same function) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7,lines 60-67).

As per claim 7, Stikvoort and Okanobu in combination would teach wherein said second one of said first and second filter sections comprises a plurality of stages (see Stikvoort fig.4 and col.5, lines 32-45) , each stage comprising: a first resistor having a first terminal for receiving said positive in-phase input signal, and a second terminal for providing said positive in-phase filtered signal (see Stikvoort fig.4 element 52); a second resistor having a first terminal for receiving said positive quadrature input signal, and a second terminal for providing said positive quadrature filtered signal (see Stikvoort fig.4 element 70); a third resistor having a first terminal for receiving said negative in-phase input signal, and a second terminal for providing said negative in-phase filtered signal (see Stikvoort fig.4 element 88); a fourth resistor having a first terminal for receiving said negative quadrature input signal, and a second terminal for providing said negative quadrature filtered signal (see Stikvoort fig.4 element 106); a first capacitor having a first terminal coupled to said first terminal of said first resistor, and a second terminal coupled to said second terminal of said second resistor (see Stikvoort fig.4 element 62); a second capacitor having a first terminal coupled to said first terminal of said second resistor, and a second terminal coupled to said second terminal of said third resistor (see Stikvoort fig.4 element 80); a third capacitor having a first terminal coupled to said first terminal of said third resistor, and a second terminal coupled to said second terminal of said fourth resistor (see Stikvoort fig.4 element 98); and a fourth capacitor having a first terminal coupled to said first terminal of said fourth resistor, and a second terminal coupled to said second terminal of said first resistor (see Stikvoort fig.4 element 99 and col.5, lines 15-42) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7,lines 60-67).

As per claim 8, Stikvoort and Okanobu in combination would teach wherein resistances said first, second, third, and fourth resistors of a first one of said plurality of stages are related to corresponding resistances of said first, second, third, and fourth resistors of a second one of said plurality of stages by a predetermined ratio (see Stikvoort fig.4) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7,lines 60-67).

As per claim 9, Stikvoort and Okanobu in combination would teach wherein said predetermined ratio is about 1:2.5) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claim 10, Stikvoort inherently teaches a polyphase filter (see fig.4 element 6) comprising: at least three polyphase filter stages (see fig.4 and col.5,lines 43-50) wherein a first polyphase filter stage has an input for receiving an input signal, and a last polyphase filter stage has an output for providing a filtered signal(see fig.4 and col.5,lines 43-50); each polyphase filter stage except said first polyphase filter stage having an input coupled to an output of a preceding polyphase filter stage(see fig.4 and col.5,lines 43-50); each polyphase filter stage except said last polyphase filter stage having an output coupled to an input of a succeeding polyphase filter stage(see fig.4 and col.5,lines 43-50); and wherein one of said at least three polyphase filter stages is coupled to another one of said at least three polyphase filter stages by means of a buffer(see fig.4 element 57 and col.5, lines 15-55).

However Stikvoort does not teach wherein one of said first and second filter sections has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio.

Okanobu teaches wherein a filter section (one of said first and second filter sections) has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio (see figs.2, 8 elements 171-175 and col.7, lines 15-42).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Okanobu into Stikvoort as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claim 12, Stikvoort teaches wherein said first polyphase filter stage is coupled to a second polyphase filter stage by means of said buffer (see fig.4 element 57). Furthermore implementing such teaching into Stikvoort would have been obvious to one skilled in the art as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claim 13, Stikvoort inherently teaches wherein a next to last polyphase filter stage is coupled to said last polyphase filter stage by means of said buffer (see fig.4).

As per claim 14, Stikvoort teaches wherein said first polyphase filter stage is characterized as being a passive polyphase filter stage (see col.2, lines 33-36).

As per claim 17, Stikvoort teaches wherein said step of configuring comprises the steps of: forming a first one of said first and second polyphase filter sections with at least one stage, and forming a second one of said first and second polyphase filter sections with at least two stages (see fig.4 and col.5, lines 43-67).

As per claim 19, Stikvoort inherently teaches wherein said signals representative of at least two phases of said input signal comprise a positive in-phase input signal, a negative in-phase input signal, a positive quadrature input signal, and a negative quadrature input signal, and wherein said signals representative of at least two phases of said filtered signal comprise a positive in-phase filtered signal, a negative in-phase filtered signal, a positive quadrature filtered signal, and a negative quadrature filtered signal (seecol.3, lines 24-25)..

As per claim 20, Stikvoort and Okanobu in combination would teach wherein said signals representative of at least two phases of said input signal comprise a positive in-phase input signal, a negative in-phase input signal, a positive quadrature input signal, and a negative quadrature input signal, and wherein said signals representative of at least two phases of said filtered signal comprise a positive in-phase filtered signal, a negative in-phase filtered signal, a positive quadrature filtered signal, and a negative quadrature filtered signal (see Stikvoort col.3, lines 24-25) as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7,lines 60-67).

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 21-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hietala et al U.S. Patent No 7,251,298 B1 in view of Stikvoort U.S. patent No 6,236,8747 B1 in view of and in further view of Okanobu.

As per claim 21, Hietala et al teaches an image rejecting mixer comprising: a first multiplier having a first input for receiving an input signal (see figs.5-7 element 38), a second input for receiving a first local oscillator signal (see element 12 I1), and an output; a second multiplier having a first input for receiving said input signal (see figs.5-7 element 36), a second input for receiving a second local oscillator signal in quadrature with said first local oscillator signal (see figs.5-7 element 56 Q1), and an output; and a polyphase filter having first and second inputs respectively coupled to said outputs of said first and second multipliers, and an output for providing an output of the image rejecting mixer, and comprising ((see figs.5-7 element 32 and col.5, lines 9-15).

However Hietala et al does not teach a first polyphase filter section having an input for receiving signals representative of at least two phases of an input signal, and an output for providing signals representative of at least two phases of a filtered signal, said first polyphase filter section having a first passband response a buffer section having an input coupled to said output of said first polyphase filter section, and an output; and a second polyphase filter section having an input coupled to said output of said buffer section, and an output for providing an output of the polyphase filter, said second polyphase filter section having a second passband response; wherein said first and second polyphase filter sections are configured such that said second passband response compensates for said first passband response.

Stikvoort teaches polyphase filter comprises: a first polyphase filter section having an input for receiving signals representative of at least two phases of an input signal, and an output for providing signals representative of at least two phases of a filtered signal, said first polyphase filter section having a first passband response (see fig.4 elements 56-103 combined and col.5, lines 15-50); a buffer section having an input coupled to said output of said first polyphase filter section, and an output (see fig.4 element 57 and col.5, lines 30-55); and a second polyphase filter section having an input coupled to said output of said buffer section, and an output for providing an output of the polyphase filter, said second polyphase filter section having a second passband response (see fig.4 elements 58-116 combined and col.5, lines 44-45) ; wherein said first and second polyphase filter sections are configured such that said second passband response compensates for said first passband response (see abstract and col.1, lines 53-67 and col.2, lines 1-2).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Stikvoort into Hietala as to prevent excessive loading of the first three filter sections by the fourth and fifth filter sections as taught by Stikvoort (see col.5, lines 50-55).

However Hietala and Stikvoort in combination do not teach wherein one of said first and second filter sections has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio.

Okanobu teaches wherein a filter section (one of said first and second filter sections) has at least three polyphase filter stages, and wherein resistances of resistors

of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio (see figs.2, 8 elements 171-175 and col.7, lines 15-42).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Okanobu into Hietala and Stikvoort as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claim 22 Stikvoort teaches wherein an overall passband response of the polyphase filter is characterized as being substantially zero (flat) (see abstract and col.col.2, lines 15-20). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to set the frequency very accurately in order to realize very accurate filters as taught by Stikvoort (see col.2, lines 18-26).

As per claims 23 and 24, Stikvoort teaches wherein a first one of said first and second filter sections has at least one polyphase filter stage, and a second one of said first and second filter sections has at least two polyphase filter stages (see figs.1 and 4 and col.5, lines 43-55). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to attenuate signals above a first frequency or below a second frequency as taught by Stikvoort (see col.1, lines 55-58).

As per claim 25, Stikvoort teaches wherein said signals representative of at least two phases of said input signal comprise a positive in-phase input signal, a negative in-phase input signal, a positive quadrature input signal, and a negative quadrature input signal, and wherein said signals representative of at least two phases of said filtered signal comprise a positive in-phase filtered signal, a negative in-phase filtered signal, a positive quadrature filtered signal, and a negative quadrature filtered signal (seecol.3, lines 24-25). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to attenuate signals above a first frequency or below a second frequency as taught by Stikvoort (see col.1, lines 55-58).

As per claim 26, Stikvoort teaches wherein said first one of said first and second polyphase filter sections comprises: a first resistor having a first terminal for receiving said positive in-phase input signal, and a second terminal for providing said positive in-phase filtered signal (see fig.4 element 52); a second resistor having a first terminal for receiving said positive quadrature input signal, and a second terminal for providing said positive quadrature filtered signal (see fig.4 element 70); a third resistor having a first terminal for receiving said negative in-phase input signal, and a second terminal for providing said negative in-phase filtered signal (see fig.4 element 88); a fourth resistor having a first terminal for receiving said negative quadrature input signal, and a second terminal for providing said negative quadrature filtered signal (see fig.4 element 106); a first capacitor having a first terminal coupled to said first terminal of said first resistor, and a second terminal coupled to said second terminal of said second resistor (see fig.4 element 62); a second capacitor having a first terminal coupled to said

first terminal of said second resistor, and a second terminal coupled to said second terminal of said third resistor (see fig.4 element 80); a third capacitor having a first terminal coupled to said first terminal of said third resistor, and a second terminal coupled to said second terminal of said fourth resistor (see fig.4 element 98); and a fourth capacitor having a first terminal coupled to said first terminal of said fourth resistor, and a second terminal coupled to said second terminal of said first resistor (see fig.4 element 99 and col.5, lines 15-42). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to set the frequency very accurately in order to realize very accurate filters as taught by Stikvoort (see col.2, lines 18-26).

As per claims 27-29, Stikvoort inherently teaches wherein said buffer section comprises: a first buffer having an input terminal for receiving said positive in-phase filtered signal, and an output terminal; a second buffer having an input terminal for receiving said positive quadrature filtered signal, and an output terminal; a third buffer having an input terminal for receiving said negative in-phase filtered signal, and an output terminal; and a fourth buffer having an input terminal for receiving said negative quadrature filtered signal, and an output terminal (note that since the buffer 57 is receiving two in-phase (I+, I-) and two quadrature (Q+, Q-) filtered input signals from elements 56, 74, 92 and 110, therefore it is inherent that the buffer 57 can be replaced with four identical or different buffers to perform the same function. Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to prevent excessive loading of the first three filter sections by the fourth and fifth filter sections as taught by Stikvoort (see col.5, lines 50-55).

As per claim 30, Hietala and Stikvoort and Okanobu would teach in combination wherein said predetermined ratio is about 1:2.5 as to select the desired operation of the mixer as taught by Stikvoort (see col.6, lines 53-55).

As per claim 31, Hietala et al teaches further comprising a local oscillator having a first output for providing said first local oscillator signal, and a second output for providing said second local oscillator signal (see figs.5-7 element 12).

As per claim 32, Hietala et al teaches wherein said first and second local oscillator signals have a predetermined frequency chosen to mix (see figs. 5-7 elements 40-46) said input signal to baseband (see figs. 5-7 element 12).

As per claim 33, Hietala et al teaches a receiver comprising: a first mixer having an input for receiving an RF signal, and an output for providing an intermediate frequency (IF) signal (see fig.7 element 34); a first filter having an input for receiving said IF signal, and an output for providing a filtered IF signal (see fig.7 element 78); a second mixer having an input for receiving said filtered IF signal, and an output for providing a baseband signal (see fig.7 element 32); and a second filter having an input for receiving said baseband signal, and an output for providing a filtered baseband signal (see fig.7 element 51); wherein said second mixer is characterized as being an image rejecting mixer and comprises: a first multiplier having a first input for receiving an input signal (see figs.5-7 element 38), a second input for receiving a first local oscillator signal (see element 12 I1), and an output; a second multiplier having a first

input for receiving said input signal (see figs.5-7 element 36), a second input for receiving a second local oscillator signal in quadrature with said first local oscillator signal (see figs.5-7 element 56 Q1), and an output; and a polyphase filter having first and second inputs respectively coupled to said outputs of said first and second multipliers, and an output for providing an output of the image rejecting mixer; and a polyphase filter having first and second inputs respectively coupled to said outputs of said first and second multipliers, and an output for providing an output of the image rejecting mixer (see figs.5-7 element 51 and col.5, lines 38-40).

However Hietala et al does not teach a first polyphase filter section having an input for receiving signals representative of at least two phases of an input signal, and an output for providing signals representative of at least two phases of a filtered signal, said first polyphase filter section having a first passband response a buffer section having an input coupled to said output of said first polyphase filter section, and an output; and a second polyphase filter section having an input coupled to said output of said buffer section, and an output for providing an output of the polyphase filter, said second polyphase filter section having a second passband response; wherein said first and second polyphase filter sections are configured such that said second passband response compensates for said first passband response.

Stikvoort teaches polyphase filter comprises: a first polyphase filter section having an input for receiving signals representative of at least two phases of an input signal, and an output for providing signals representative of at least two phases of a filtered signal, said first polyphase filter section having a first passband response (see fig.4 elements 56-103 combined and col.5, lines 15-50); a buffer section having an input coupled to said output of said first polyphase filter section, and an output (see fig.4 element 57 and col.5, lines 30-55); and a second polyphase filter section having an input coupled to said output of said buffer section, and an output for providing an output of the polyphase filter, said second polyphase filter section having a second passband response (see fig.4 elements 58-116 combined and col.5, lines 44-45) ; wherein said first and second polyphase filter sections are configured such that said second passband response compensates for said first passband response (see abstract and col.1, lines 53-67 and col.2, lines 1-2).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Stikvoort into Hietala as to prevent excessive loading of the first three filter sections by the fourth and fifth filter sections as taught by Stikvoort (see col.5, lines 50-55).

However Hietala and Stikvoort in combination do not teach wherein one of said first and second filter sections has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three polyphase filter stages by a predetermined ratio.

Okanobu teaches wherein a filter section (one of said first and second filter sections) has at least three polyphase filter stages, and wherein resistances of resistors of each preceding stage of said at least three polyphase filter stages are related to resistances of corresponding resistors of a succeeding stage of said at least three

polyphase filter stages by a predetermined ratio (see figs.2, 8 elements 171-175 and col.7, lines 15-42).

It would have been obvious to one of ordinary skill in the art to implement the teaching of Okanobu into Hietala and Stikvoort as to determine on the amount of attenuation required for suppressing the image signal components and specific band as taught by Okanobu (see col.7, lines 60-67).

As per claim 34 Stikvoort teaches wherein an overall passband response of the polyphase filter is characterized as being substantially zero (flat) (see abstract and col.col.2, lines 15-20). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to set the frequency very accurately in order to realize very accurate filters as taught by Stikvoort (see col.2, lines 18-26).

As per claim 35, Stikvoort teaches wherein a first one of said first and second filter sections has at least one polyphase filter stage, and a second one of said first and second filter sections has at least two polyphase filter stages (see figs.1 and 4 and col.5, lines 43-55). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to attenuate signals above a first frequency or below a second frequency as taught by Stikvoort (see col.1, lines 55-58).

As per claim 36, Stikvoort teaches wherein said first mixer mixes said RF signal to a fixed IF (see abstract). Furthermore implementing such teaching into Hietala and Okanobu combination would have been obvious to one skilled in the art as to set the frequency very accurately in order to realize very accurate filters as taught by Stikvoort (see col.2, lines 18-26).

As per claim 37, Hietala et al teaches further comprising a low noise amplifier having an input adapted to be coupled to an antenna, and an output coupled to said input of said first mixer for providing said RF signal (see col.1, lines 58-67).

As per claim 38, Hietala et al and Stikvoort and Okanobu in combination would teach a programmable gain amplifier coupled between said output of said second mixer and said input of said second filter as to help prevent instability in the receiver and reduce the chance of undesired effects.

Conclusion

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571 272 3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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4/2/2008

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